



# National Education Commission 1<sup>st</sup> Biennial Research Symposium on Education

*1<sup>st</sup> NECRS - 2022*

“Nurturing a Society of Productive, Caring, and Patriotic Citizens”

## PROGRAMME AND ABSTRACTS

*Programme  
Keynote Speeches  
Guest Speeches  
Abstracts*

16<sup>th</sup> December 2022

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ஒவ்வொரு சிறுவர்களுக்காகவும்



# 1<sup>st</sup> Biennial Research Symposium on Education

*1<sup>st</sup> NECRS 2022*

## **PROGRAMME AND ABSTRACTS**



**National Education Commission**

16<sup>th</sup> December 2022

BMICH, SRI LANKA

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## Preface

The National Education Commission (NEC), established by the National Education Commission Act No. 19 of 1991, functions as the apex policy formulation body to make recommendations to the President on Education Policy and on a wide spectrum of matters connected with education reforms and development.

The NEC, having recognized the importance of encouraging education-related research as well as facilitating a continuous dialogue among the key stakeholders on matters of importance for the continuous improvement of quality and standards of the national education system has organized the National Education Commission 1<sup>st</sup> Biennial Research Symposium on Education (1<sup>st</sup> NECRS). The NECRS will be held biennially commencing from the year 2022 to create a national platform for those who are in diverse institutions engaging in education research to meet and share research findings and exchange views and opinions, and also to bring together a wide audience of political leadership, policy planners, officers of implementing agencies, educationists and academics, and postgraduate and undergraduate students for scholarly discourses and debates.

The Programme and Abstract Booklet contains excerpts of keynote and guest speeches and abstracts of research communications lined up at the symposium. The full papers of all communications listed herein will be published in the post-conference symposia proceedings that will be released in the first quarter of 2023.

The Organizing Committee of 1<sup>st</sup> NECRS wishes to place on record its gratitude to all those who assisted the committee in numerous ways in organizing and conducting this landmark event:

- Hon. State Minister of Higher Education, Dr. Suren Raghavan for gracing this occasion as the chief guest and adding value to the symposium,
- Secretary of the Ministry of Education, Mr. Nihal M. Ranasinghe for his encouragement and presence at the inaugural session as a special guest,
- UNICEF Deputy Representative, Ms. Takaho Fukami for gracing the occasion as a special guest and delivering a guest speech
- UNICEF and SLT for generously providing the sponsorship for the 1<sup>st</sup> NECRS,
- All keynote and guest speakers – Prof. Gunapala Nanayakkara, Prof. Lakshman Dissanayake, Prof. Dhammika Tantrigoda, Dr. Indrani Talagala, Prof. Sampath Amaratunga, Dr. Sunil Jayantha Navaratne, Dr. Asiri Hewamalage, and Dr. D. D. D. Suraweera for accepting our invitation and coming here to share their insight on key issues faced by the education sector,
- Reviewers who have devoted their valuable time in reviewing the extended abstracts,
- All authors of research communication and their co-authors who have responded to our invitation and come here to share their findings with a wider audience, and
- All those who attend the symposium today on our invitation.

**Symposium Organizing Committee**  
**National Education Commission**

## **Message from the National Education Commission Secretariat**

Launching of the National Education Commission Research Symposium (NECRS) reinforces the NEC's commitment to fostering the national education system through policy formulation, policy analysis and research, and making recommendations on issues of importance through evidence-based appraisals and intellectual discourses. We are of the view that the NECRS which will be held biennial basis commencing from 2022 will provide an affable environment for the policy makers, policy planners, education administrators, academics, researchers, teacher educators and teachers to freely exchange their views and opinions with each other to create a deeper understanding on key issues and gaps in the field of education that require interventions at the level of policymakers, policy planners, administrators and practitioners.



**Prof. Harischandra  
Abeygunawardena**  
Chairman



**Mrs. Padmini Ranaweera**  
Vice Chairperson (Policy)



**M. Kingsly Fernando**  
Vice Chairman (Planning)

## Symposium Programme

<b>Inauguration Ceremony (Jasmine Hall)</b>	
8.00– 8.40 am	Registration
8.40 – 8.50 am	Inauguration Ceremony
8.50 – 9.00 am	Welcome Speech by Professor Harischandra Abeygunawardena, Chairman, National Education Commission
9.00 – 9.15 am	Keynote Speech by Professor Gunapala Nanayakkara, Advisor on Education, Ministry of Education <i>Designing the Trajectories of Reforms Through Transformations in Education</i>
9.15– 9.25 am	Address by Mr Nihal M. Ranasinghe, Secretary of the Ministry of Education
9.25 – 9.40 am	Address by the Special Guest, Ms. Takaho Fukami (UNICEF Deputy Representative) <i>Impact of COVID -19 and the Economic Crisis on Learning and What Research Evidence Suggests Accelerating Our Learning Recovery Efforts</i>
9.40 – 9.55 am	Address by the Chief Guest, Hon. Dr. Suren Raghavan, State Minister of Higher Education
9.55 –10.00 am	Vote of Thanks by Dr. Viraj Ranawakage, Symposium Coordinator
10.00 –10.15 am	Morning Tea
<b>Session 1 - General Education &amp; Early Childhood Education (Jasmine Hall)</b> <i>Chairperson - Professor Marie Perera</i>	
10.15 – 10.30 am	Keynote Speech by Dr. Sunil Jayantha Nawaratne, Director General, National Institute of Education <i>21<sup>st</sup> Century Education Reforms for Sustainable National Development and Peace</i>
10.30 – 10.45 am	Can the Concepts of Global Citizenship Education be Inculcated in Secondary School Students Through the Modules Offered Under Different Subjects? Evidence from Sri Lanka <i>Anthoni Durage Asoka De Silva, Darshana Samaraweera, Umami De Silva, K.G.K. Prabhash, Paramarajan Atchuthan, W.A.M.C.P. Welagedara, G.K. Verosha, T.A.R. Jayasena, J.C. Thapaswarage, and K.K.V.S. Kankanamge</i>
10.45 – 11.00 am	Creating Competent English Language Users for the 21 <sup>st</sup> - Century: Developing English as a Second Language Curriculum Based on Validated Level Descriptors for the General Education System in Sri Lanka <i>Darshana Samaraweera, Chapa Welagedara, and Kalani Geeganage</i>

11.00 – 11.15 am	Keynote Speech by Dr. Indrani Talagala, Former Head of the Department of Early Childhood and Primary Education, Open University of Sri Lanka <i>Early Learning and Development Standards: the Foundation for a Society of Productive, Caring and Patriotic Citizens</i>
11.15 – 11.30 am	Guest Speech by Dr. Asiri Hewamalage, National Programme Manager in Child Care and Development and Special Needs, Family Health Bureau, Ministry of Health <i>Nurturing Care Framework for Early Childhood Development</i>
11.30 – 11.45 am	Assessment of Structural and Process Quality of Care and Education Provisions Provided to Preschool Children in Sri Lanka <i>Priyangika Weerakoon and Achala Damayanthi</i>
11.45 – 12.00 pm	Exploring the Secondary School Mathematics Teachers' Awareness and Practices on 21 <sup>st</sup> Century Learning <i>Darshani Herath and Prasad Sethunga</i>
12.00– 12.15 pm	Investigating the Influences of Mathematics Teachers' Pedagogical Content Knowledge on Students' Algebraic Thinking <i>Deepa Dayanganie Rupasinghe, Ashwini Amarasinghe, and Pushpa Vitharana</i>
12.15 – 12.30 pm	STEM/STEAM Education in Sri Lankan General Education System: Current Status and Way Forward <i>Nirosha Priyadarshani, Suranga Lakmal, Rasika Karunaratne, Prasad Sethunga, and Sakunthala Yatigammana</i>
12.30 – 12.45 pm	Entrepreneurship Education at Schools in Sri Lanka: Perspective of Entrepreneurs of Jaffna District <i>Kailasapathy Iyampillai</i>
1.00 – 2.00 pm	Lunch
<b>Session 2 – General Education &amp; Higher Education (Parallel Session) – Tulip Hall</b> <b><i>Chairperson – Professor Gominda Ponnampereuma</i></b>	
2.00 – 2.15 pm	Keynote Speech by Senior Professor Sampath Amaratunge, Chairman, University Grants Commission <i>Rapid and Revolutionary Changes in Higher Education in Sri Lanka During the Last Few Years</i>
2.15 – 2.30 pm	Guest Speech by Emeritus Professor Lakshman Dissanayake, Former Vice Chancellor, University of Colombo <i>Review of University Admission Policy</i>
2.30 – 2.45 pm	Impact of Teaching, Cognitive and Social Presences on Learning Effectiveness: Evidence from Management Faculty Undergraduates in the University of Kelaniya, Sri Lanka <i>Vimansha Ranasinghe and Vindya Gunasekara</i>
2.45 – 3.00 pm	Mental Health Status and Psychological Counselling Needs of Undergraduates: A Dilemma in State Universities <i>Jayaprasad Welgama</i>



3.00 – 3.15 pm	An Investigation Towards Digital Transformation for a Sustainable Higher Education in Sri Lanka <i>Thikshani Somarathna, Dumani Jayasinghe, Suranga Lakmal, Chathuri Weragama, Asitha Bandaranayake, Roshan Ragel, and Deepthi Bandara</i>
3.15 – 3.30 pm	Congruence of Human Resources Produced by Universities with Employment Market: Part I: Intake and Output, Employability Trends, and Employability by Discipline <i>Rajika Ranasinghe, Dumani Jayasinghe, Gominda Ponnampereuma, and Harischandra Abeygunawardena</i>
3.30 – 3.45 pm	Orthographic Errors in English Writings of Bilingual Students <i>Krishna Weerathunga Ekanayake</i>
3.45 – 4.00 pm	Effect of Module-based Self-Learning Approach on Achieving 21 <sup>st</sup> Century Skills by Secondary Level Students in Sri Lanka <i>Kusumawathie Pathiraja Hewawitharanalage</i>
4.00 – 4.15 pm	Distance Education Practices in Sabaragamuwa Province: A Case Study in Practitioner's Perspective <i>Lakmal Eranda</i>
4.15 – 4.30 pm	Perceived Organizational Support as a Mediating Role Between Emotional Work and Employee Well-being <i>Nayani Senarathna and Vimansha Ranasinghe</i>
4.30 – 4.45 pm	Impacts of Teacher-Student Interaction on Science Learning: A Case Study in Badulla Educational Zone, Sri Lanka <i>Niranga Bandara and Ashoka Abeykoonmanike</i>

**Session 3 – General Education and Technical Education  
(Parallel Session) - Saffron Hall**  
*Chairperson- Dr. T. A. Piyasiri*

2.00 – 2.15 pm	Keynote Speech by Dr. D. D. D. Suraweera, Senior Lecturer, Department of Electrical and Electronics Technology, University of Vocational Technology <i>Challenges and Opportunities of TVET in the Economic Recovery</i>
2.15 – 2.30 pm	Guest Speech by Professor Dhammika Tantrigoda, Chancellor of Open University of Sri Lanka <i>Review of Z-score Standardization of GCE(A/L) Examination Marks</i>
2.30 – 2.45 pm	Improving Motivation on Professional Development of Teachers During the COVID-19 Pandemic Situation in Sri Lanka <i>Thanuja Perera</i>
2.45 – 3.00 pm	TVET Diploma Programmes (NVQ 5/6): Demand and Supply, Physical and Human Resources, and Success Rates <i>Mayuran Christy Rajenthira, Viraj Ranawakage, and Dimuthusiri Suraweera</i>
3.00 – 3.15 pm	Status of International Schools in Sri Lanka: Preliminary Findings <i>Lakmini De Silva, Kaushalya Geethamali, and Marie Perera</i>

3.15 – 3.30 pm	Teacher Professionalism: Assessment of Current Status of Continuing Professional Development Programmes <i>Nirosha Priyadarshani, Achala Damayanthi, Jayalath Hewage, Subhashini Wijesundera, and Prasad Sethunga</i>
3.30 – 3.45 pm	A Study on Environmentally Conscious Behaviour and Attitudes of In-service Science Teachers in Sri Lanka <i>Nishamani Weerasinghe</i>
3.45 – 4.00 pm	Experience Gathered from the Pre-pilot Study on Implementing Module-Based Science Curriculum Reforms Islandwide <i>Priyanga Perera, Lasanthika Bandara, Amila Prabhath</i>
4.00 – 4.15 pm	Impact Made by Mission Schools for the Development of Education in Sri Lanka: Case Study on the Schools by the Wesleyan Mission <i>Rasika Abeysinghe</i>
4.15 – 4.30 pm	Challenges of Online Learning for Chinese as a Foreign Language Learning in General Education System in Sri Lanka <i>Sammanie Kandambi</i>
4.30 – 4.45 pm	Assessing the Secondary School Students' Ability to Understand Representations Involved in Force and Motion Concepts <i>Shanaka Piyatissa and Lalitha Waduge</i>
4.45 – 5.00 pm	Capacity Building and Professional Development of Academic Staff Members of National Colleges of Education in Sri Lanka <i>Srini Nanayakkara</i>
5.00 pm	Closing of the Symposium

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# KEYNOTE SPEECHES



### **Professor Gunapala Nanayakkara**

PhD (Carleton)

Advisor on Education, Ministry of Education

Professor Gunapala Nanayakkara is currently the Advisor on Education to the Ministry of Education. Previously, he has held responsibilities as the Vice-Chairman, University Grants Commission; Acting Director-General, National Institute of Education; Addl. Director-General, National Institute of Education; Academic Advisor, Graduate School of Management; Director; and Senior Professor of Management Studies, Postgraduate Institute of Management, University of Sri Jayewardenepura, Sri Lanka.

He has earned academic and professional qualifications including BPA(Spcl.)(Vidyoda) 1970, MPA(York) 1976, PhD (Carleton) 1980, and received D.Lit (Sab) 2005; Fellow of Sri Lanka Institute of Banking; Fellow of Institute of Personnel Management; and Fellow of Council of Medical Administrators, Sri Lanka. He has served in many public and private boards of governance and committees and received many awards including Sri Lanka Sikhmani Presidential Award (Tertiary Education) in 2005 and Asian Grid Leadership Award for Excellence in Management Education in 2005. He has published widely based on his research studies

# Designing the Trajectories of Reforms Through Transformations in Education

Prof. Gunapala Nanayakkara, PhD (Carleton)  
Advisor on Education, Ministry of Education

**Abstract:** Currently, the Ministry of Education is formulating reforms revolving around national education policy, education law, systems of education administration, general education curriculum, higher education, technical and vocational studies, and professional education and training. Fortunately, the key institutions responsible for these areas of reform are under one governing umbrella of the Ministry of Education and hence the process of formulation can be expedited more efficiently than before.

Given the above national task of change of education, it is of fundamental importance to conceive the designing the trajectories of reforms through transformations in education. I may refer to few key areas of change where transformations should occur. The first is the early childhood learning which is now open to all forms of tragedies of child development in the hands of unprofessional business persons. Pre-school learning must come under the government, and design as Kindergarten (K). The second is the abolition of the current misnomer in primary education assessment, the Grade 5 Scholarship Examination, and the introduction of a more rational and principled form of assessment at Grade 5. The third is the abolition of the examination and grading system at GCE (O/L) which is designed to send young children home with a label of 'fail', and introduce an assessment of achievement on a scale of GPA. The fourth is the introduction of career paths at GCE(A/L) which are equally valued as university entrance. The fifth area of change I consider recommending the de-linking of GCE(A/L) examination from university entrance, and introducing a separate admission test as in India. The sixth change area is to link all sub-systems in education under one umbrella of career guidance and financial support. The seventh is the abolition of the current system of free textbooks and uniforms and giving these subsidies only to the needed free. The last is the abolition of free education after Grade 13, and support the needy children with a further education loan system.

All reforms of education may have their trajectories fallen on these milestone changes which I may consider as transformational.



### **Dr. Sunil Jayantha Nawaratne**

PhD (Management), MA (Economics), MBA (Management) & BSc (Business Management)

The Current Director General of the National Institute of Education, Dr Sunil Jayantha Nawaratne, is an expert in Human Capital Development, Higher Education, Poverty Alleviation and Youth Empowerment, and the developer of the K-SAM Human Capital Model. He also functions as a Management Consultant and Coach in Strategic Management, an Academic Lecturer in MBA study programmes, and a Leader in both public and private sectors. He is well known Public Speaker and Presenter.

Dr. Nawaratne completed his PhD in Management (Strategic Management / Marketing) at the Keio University, Tokyo, Japan. He also has a MA (Economics) Kagawa University, Takamatsu, Japan (Japanese-way of doing Marketing), and MBA (Management) University of Sri Jayawardenapura and B.Sc (Business Admin), 2nd Class Upper Division (Top of the Batch) University of Sri Jayawardenapura.



# 21<sup>st</sup> Century Education Reforms for Sustainable National Development and Peace

Dr. Sunil Jayantha Navaratne, Director General, National Institute of Education

The 5th UNESCO **Forum on Transformative Education for Sustainable Development, Global Citizenship, Health and Well-being**, which was held in 2021 emphasised the need of focusing on “**Transforming Education**” instead of reforming education. Hon. Minister of Education, Dr. Premajyantha too has highlighted this sentiment and stated “it is time to “**Transform Education**” instead of reforming”. The **National Education Policy Framework (2020-2030)** which was published by National Education Commission (NEC), has clearly highlighted the importance of education reforms with special attention to curriculum reforms. The new education policy framework has clearly identified the importance of producing **K-SAM graduates** from general education as well as from higher education. The new education policy has clearly recognized the four components of education as K-SAM, by adding the **Mindset and Paradigm** component to the traditional **KSA taxonomy**.

**Knowledge** – what do they know, both theoretical knowledge & practical knowledge;  
**Skills** – what can they do or Learning, Literacy and Life skills or 21<sup>st</sup> Century Skills;  
**Affective** – how do they think and behave or attitudes and values and citizenship education.

Finally, they have recognized the most important but unidentified component of education: that is **Mindset and Paradigm (M&P)** - or how do they perceive the world or lens through which they view the world.

To explain the 21<sup>st</sup> Century and 4<sup>th</sup> Industrial Revolution-ready human capital, the NIE has developed a new equation as given below:

$$21^{\text{st}} \text{ CHC} = 3\text{R}+3\text{L}+2\text{C}+\text{SDL}$$

**21<sup>st</sup> CHC** – 21<sup>st</sup> Century Human Capital

**3R** – Reading, (w)Ritting, (a)Rithmetic and subject knowledge

**3L** – Learning skills, Literacy skills, and Life-skills

**2C** – Character & Citizenship Education (CCE) or Value Education

**SDL** – Self-Directed Learning or Life-Long-Learning

Our present education system has been designed to produce “**3R plus Subject Knowledge**” graduates from general education mainly with theoretical knowledge, except few areas like aesthetics, technology, agriculture, etc. But reading, writing, arithmetic and theoretical knowledge alone are not enough to face the challenges of the modern dynamic and technology-savy world. Those three R’s are essential but not sufficient to be successful as human capital in today’s complex world.

On top of the 3R, the 3Ls or **Learning, Literacy and Life Skills (3L)** are essential to be a successful person in today's world of work. As of Wikipedia, learning is defined as “**an increase, through experience of problem-solving ability**”; i.e., an increase, through experience, of the ability to gain goals in spite of obstacles.

### **Learning Skills**

In our life, we have two “P” s and those are “**Problems and People**”.

To deal with the first P-Problems, every person should have, critical thinking and problem-solving skills as well as creativity, innovativeness and entrepreneurship skills. To deal with the second P-People, every person should have the capabilities of collaboration and teamwork skills as well as communication skills.

With the present, teacher-centred, textbook-based and exam-based education system, we are unable to develop these learning skills since most of the time students are listening to the teacher and getting notes and finally, they face a written examination during one to two hour exam. In this context, students are passive learners and the teacher is dominating the classroom and instruction process. This teacher-centred system is outdated, and under the new reforms, we shift it to the “**Learner & Learning-Centered**” approach. In other words, what is important is “**not what we have been taught but what we have learnt**”. In this context, the teaching-learning method is shifting from teaching to learning and the learner is empowered. These methods include **Active Learning**, in which students solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm during the class. In this context, students are using collaborative learning techniques rather than learning alone, which promotes teamwork and working with others' skills. Blended learning is promoted, paving the way to use more updated and current online material and digital tools.

### **Literacy Skills**

Under the heading of Literacy Skills, today every student should be armed with Information, Media, Technological, Digital and Financial literacies. These literacy skills are considered essential to be a successful person to face the 21<sup>st</sup> Century as well as the 4<sup>th</sup> IR challenges.

### **Life Skills**

Life Skills are more important to be a modern human capital in today's society and under this, **Flexibility, Leadership, Initiative, Productivity and Social Skills** have been identified under the P21 Framework or Partnership for 21<sup>st</sup> Century Learning. In the proposed new reforms, we have changed the curriculum, pedagogy or teaching and learning process as well as evaluation and assessments to develop these 21<sup>st</sup> Century Skills systematically among all students.

### **Character & Citizenship (2C) or Value-Driven Education**

Not only 21<sup>st</sup> Century Skills but also **Character & Citizenship Education (CCE) or Value-Driven Education**, also plays a vital role in human capital to suit with the new challenges. Character and Citizenship Education is defined as “*a deliberated effort to cultivate civility, ethical behaviours, self-management skills and personal attributes that our society values in its schools' graduates, community members and employees*”.

**Character and Citizenship Education (CCE)** aims to inculcate values and build social and emotional competencies in students. This in turn is to develop them into good individuals and useful citizens in a fast-changing and globalized world. It develops students through an understanding of the values that define the Sri Lankan society, inspiring them to show concern about the world they live in, and demonstrate empathy in their relationships with others.

### **Self-Directed Learning (SDL)**

SDL is a learning strategy which allows learners to take charge of their own learning process (diagnose learning needs, identify learning goals, select learning strategies, and evaluate learning performances and outcomes) to up-date self in this rapidly changing environment to keep them self-updated or shifting the **Mindset & Paradigms of Self**.

The concept of growth and fixed mindsets was coined by psychologist Carol Dweck in her 2006 book, “**Mindset: The New Psychology of Success**”.

Someone with a growth mindset views intelligence, abilities, and talents as learnable and capable improvements through effort. On the other hand, someone with a fixed mindset views those same traits as inherently stable and unchangeable over time.

A mindset may also arise from a person’s worldview or philosophy of life. On the other hand, the paradigm has been defined by Thomas Kuhn in his influential work, “**The Structure of Scientific Revolutions(1962)**”. According to Kuhn, different stages in the history of scientific thought are characterized by different scientific paradigms, or worldviews, each consisting of a body of formal theories, classic experiments, and trusted methodologies.

These **Mindset and Paradigm** concepts are directly linked with the effectiveness of doing the right thing and if our mindset and paradigms are outdated, “**believing it is correct we do the wrong thing**”. Therefore, continuously updating self is very essential and for that “**Self-directed-learning**” is a must.

In nutshell, the proposed education reforms or transformation of education is demanding a drastic change in the present education system and let’s get together and make it a success in order to make Sri Lanka a developed nation with US\$ 12,000 per capita income at least by 2040.

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### **Dr. Indrani Talagala**

BA, MPhil, PhD

Dr. Indrani Talagala is a renowned expert in early childhood care and education. She functions as a member of the National Education Commission, National Coordinating Committee on Early Childhood Care and Development of the Ministry of Women, Child Affairs, and Social Empowerment, and Faculty Board of the Faculty of Education of the Open University of Sri Lanka.

Dr. Talagala holds her BA from the University of Ceylon and MPhil and PhD from the University of Colombo. She served as the Head of the Department of Early Childhood and Primary Education of the Open University of Sri Lanka, and currently serving as a visiting academic in the MSc in Early Childhood Development Programme of the Institute of Educational Development, BRAC University, Bangladesh. She also worked as a consultant to the World Bank on several projects on early childhood care and education.

## **Early Learning and Development Standards: the Foundation for a Society of Productive, Caring and Patriotic Citizens**

Dr. Indrani Talagala, Former Head of the Department of Early Childhood and Primary Education, Open University of Sri Lanka

To nurture a society of productive, caring, and patriotic citizens no country can overlook Early Childhood Care and Education (ECCE). Specifying Early Learning and Development Standards (ELDS) is one of the measures that can be taken to accomplish this vision. ELDS promote children's optimal development and provide mechanisms to monitor outcomes of child development. Standards define "a level of quality, a moral rule that should be obeyed, and a pattern or a model that is generally accepted" (Cambridge Dictionary) while the learning standards present a concise, written description of 'what students are expected to know and be able to do at a specific stage of their education' (The Glossary of Education Reforms, 2014). The Early Learning and Development Standards (ELDS) present statements of what children in early childhood should know and be able to do. The terms "Early Learning Standards," "Early Learning and Development Standards," or "Learning Outcomes"

are used interchangeably in most countries (Kagan, 2013<sup>1</sup>), While Sri Lanka used the term “Early Childhood Development Standards” in this regard (The Children’s Secretariat, 2016<sup>2</sup>). According to Kagan, countries with government-sanctioned documents generally use their standards documents for the purposes of (i) curriculum development and instructional assessment; (ii) professional development; (iii) parenting education and engagement; and (iv) national evaluation and monitoring.

ELDS are research-driven. Sri Lanka has conducted focus group discussions, surveys, and child assessments to develop and validate standards and appropriate indicators. Focus group discussions (FGDs) conducted with parents, teachers, religious dignitaries, and community leaders have identified the expectations of Sri Lankan society for children. Based on the findings of these FGDs the guiding principles have been defined and the domains, subdomains, and specific aspects of child development have been identified. The domains identified for ECDS were health and physical development, social and emotional development, cognitive development, and language and early literacy. Standards and indicators have been developed for each specific aspect of respective domains. These indicators have been field-tested for content validity and age validity. Kaul (2019<sup>3</sup>) who conducted a Mapping of Early Childhood Development Standards and Good Practices for the UNICEF states that standards developed for Sri Lankan preschool children present a very good model of an integrated set of standards for the holistic development of the child. However, to accomplish the vision of “*nurturing a society of productive, caring, and patriotic citizens*” Sri Lanka needs to develop standards for families and teachers, and as well as for access to services.

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2 Children Secretariat of the Ministry of Women and Child Affairs (2016) Early Childhood Development Standards for Sri Lankan Children. <https://www.childsec.gov.lk/resources/105/Section%205-%20Book.pdf>

3 Kaul, V. (2019), A Mapping of Early Childhood Development Standards and Good Practices: Lessons for South Asia, United Nations Children’s Fund Regional Office for South Asia, Kathmandu, 2019. Retrieved from <https://www.unicef.org/rosa/media/12421/file/A%20Mapping%20of%20Early%20Childhood%20Development%20Standards%20and%20Good%20Practices.pdf>



### **Professor Sampath Amarathunga**

PhD, MA, MSc, BA

Professor Sampath Amarathunga, the Chairman of the University Grants Commission is a visionary and builder of organizations, astute university administrator, academic par-excellence, renowned business consultant and humanist.

Renowned expert in the field of rural economic development, Professor Amarathunga completed his PhD at Kagoshima National University, Japan. He also has a MA in Economics from the University of Colombo, MSc in Economics of Rural Development from Saga National University, Japan and BA (Hons.) in Economics from the University of Sri Jayewardenepura. He has over 75 refereed publications to his name, both locally and internationally. He is also a recipient of the prestigious Research Excellence Award in 2002, awarded by the Kyushu Society of Rural Economics, Japan, and several other local and international awards. In the year 2021, Professor Sampath Amarathunga was awarded “The Order of the Rising Sun” by His Majesty the Emperor of Japan, bestowed on foreign nationals who have made distinguished contributions to enhancing friendly relations with Japan.

As a twice-appointed Vice Chancellor of the University of Sri Jayewardenepura and with a service of over 30 years, Professor Amarathunga has contributed greatly to uplifting the standards of the university education system in Sri Lanka. He has been an instrumental figure in bridging the gap between university education and the industry through research and innovation. His contributions and accomplishments have received both national and international recognition. In 2017, the Dharma Buddhist University of Malaysia conferred him a Doctorate in Philosophy. Additionally, in 2018 he received the “Vidyodaya Dharmashasthra Vibushan”, an honorary award bestowed on him for his contributions to the country and Buddhism, making him the sole Vice Chancellor in Sri Lanka to do so.



# Rapid and Revolutionary Changes in Higher Education in Sri Lanka during the Last Few Years

Prof. Sampath Amarathunga, Chairman, University Grants Commission

**Abstract:** During the last few years, the higher education sector in Sri Lanka witnessed several rapid and revolutionary changes. The number of students admitted to the universities in the Academic Year 2019/2020 increased by an unprecedented level - 31% compared to the previous year. To facilitate this enhanced intake, an additional cadre of five hundred academic staff members together with seventy temporary academic positions have been approved by the Department of Management Services.

After a span of 15 years, two new national universities namely, Gampaha Wickramarachchi University of Indigenous Medicine and Vavuniya University were added to the university system of Sri Lanka. Further, during the last three-year period, 12 new faculties, 80 new academic departments, 84 first-degree programmes and 84 postgraduate degree programmes have also been introduced.

New entrants to the universities have been provided with an opportunity to follow diplomas in Information Technology and in English while waiting for the commencement of university study programmes. Since the universities were closed due to COVID-19 pandemic for a considerable period, a system of online education was introduced through Lanka Education and Research Network (LEARN) offering free data access to students and academics. In order to help the students with financial difficulties, a loan scheme has been introduced to purchase laptop computers on a subsidized interest basis through the People's Bank. Several Computer Technology Departments were established in the Faculties of Humanities and Social Science to improve the information technology skills of the students. In order to address the acute shortage of IT personnel in the country, a programme has been launched to produce 10,000 graduates with skills in software engineering annually through the Open University of Sri Lanka.

Another important development that took place recently is the establishment of the Centres for Gender Equity and Equality and Social Reconciliation in State universities for the purpose of creating and maintaining a conducive learning/working environment sensitive to diversity and inclusiveness.

Presently, the University Grants Commission jointly with the National Education Commission is in the process of introducing reforms in university admission policy and practices.



### **Dr. D.D. D. Suraweera**

BSc(Engineering), MTech.Ed, PhD

Dr D.D.D. Suraweera serves as a Senior Lecturer in the Department of Electrical and Electronics Technology of the University of Vocational Technology. He has contributed immensely to the development of the Technical and Vocational Education and Training Sector of Sri Lanka and played a key role in the establishment of the National Vocational Qualifications Framework of Sri Lanka.

Dr. Suraweera also extended his expertise to the Development of Technical and Vocational Education and Training Systems in Maldives, Pakistan, Bhutan and Seychelles in the areas of TVET system development, competency standard development, competency-based curriculum development, competency-based assessments and training of trainers. His research interests include electrical engineering, technical and vocational education and public-private-partnerships for the training in TVET sector. He has PhD from the University of Colombo, a Master of Technical Education from Barkathulla Khan University, Bhopal, India and a BSc.Eng. (Honors) degree in Electrical Engineering from the University of Moratuwa.



# Challenges and Opportunities of TVET in the Economic Recovery

Dr. D. D. D. Suraweera, Senior Lecturer, Department of Electrical and Electronics Technology, University of Vocational Technology.

The signature of TVET is the “hands-on skills” that one acquires at the workshops of the training centers or at the workplaces. Closure of TVET centers for a long duration and industries operated with minimum human resources impacted the delivery of this important component of the TVET, although the technology-enabled distance learning interventions were used to continue the offering of TVET courses. The TVET sector is the worst affected education segment of the country due to the pandemic and economic crisis. However, it is the component of education that can play a pivotal role in the country’s economic recovery.

Many businesses are attempting to reduce manufacturing costs through automation, digitalization, and the use of artificial intelligence. These initiatives demand highly skilled technicians with 21<sup>st</sup> Century Skills. Due to the country’s current economic situation, skilled and experienced professionals are leaving the country for better prospects. The majority of such individuals are products of the TVET system. Industries are finding it difficult to retain employees and recruit replacements. Government initiatives such as greening the industries, encouraging the use of renewable energy and promoting electromobility spur the creation of new jobs.

Increasing access to vulnerable groups including people with disabilities who were affected badly due to the present situation is another challenge. We are a country with an ageing population; at present 12.3% of our population is over 60 years. Many get retired at the age of 60 years, although healthy life expectancy 67 years. We have to involve them in an economically productive way. These situations demand upskilling and re-skilling programmes.

TVET sector should respond to these challenges quickly. The existing TVET system is designed mainly to skill school leavers to enter the world of work. Hence, the system is designed to deliver institutional-based programmes which are offered from Monday to Friday during office hours, except for a few providers who offer part-time courses. The focus of TVET needs to be shifted to serving non-conventional groups and inculcating lifelong learning culture among trainees.

Hence, change in implementation modalities, integration of blended learning and high-tech solutions, such as simulation and virtual laboratories in imparting practical training, training with production, flexible and multiple offerings, use of Massive Open Online Courses (MOOCs), creating strategic partnerships with key stakeholders and issue of micro-credentials should be envisaged. Policies and systems created prior to the present circumstances are to be reassessed through these new lenses and timely interventions with stringent quality assurance process need to be introduced into the TVET sector for it to bounce back strongly and play a significant role in the economic recovery of the country.

# GUEST SPEECHES



**Takaho Fukami,**  
Chief of Education,  
UNICEF Sri Lanka

Takaho Fukami is the UNICEF Chief of Education for Sri Lanka. She has worked for 20 years in international education on diverse portfolios in South Asia, South-East and Central Asia, Eastern/Southern Africa and Latin America, and in her home country Japan. She is passionate about the transformation of education systems to enable meaningful learning for children.

### **Impact of COVID-19 and the Economic Crisis on Learning and What Research Evidence Suggests Accelerating Our Learning Recovery Efforts**

Takaho Fukami, Chief of Education, UNICEF Sri Lanka

**Abstract:** South Asia has experienced some of the longest school closures globally caused by the COVID-19 pandemic. Since the outbreak in March 2020, school closures in South Asia have affected approximately 434 million learners, including an estimated 22 million children in early childhood education. COVID-19 has had a huge impact on learning because an estimated 147 million schoolchildren in South Asia have not been able to benefit from remote learning opportunities during school closures. Most children have only had access to a fraction of the learning opportunities that they had prior to the COVID-19 pandemic. According to UNICEF research, in Sri Lanka, 69 per cent of parents of primary school children reported that their children were learning “less” or “a lot less.” Furthermore, school closures have led to alarming inequities in learning opportunities for children in South Asia, despite significant efforts by governments and development partners to expand remote learning.

In this talk, I will speak about what some key research and evidence present in terms of the impact of COVID-19 and the economic crisis on learning in South Asia and Sri Lanka, and based on which some priority recommendations for actions in accelerating our learning recovery efforts.



### **Dr. Asiri Hewamalage**

MBBS, MSc & MD (Community Medicine),  
Grad.Cert.Ed.Stu, MEd (Inclusive & Special  
Education)

Public Health Specialist, Ministry of Health

Dr. Asiri Hewamalage received her MBBS, MSc and MD in Community Medicine from the University of Colombo. She received her Graduate Certificate in Educational Studies and Master of Education in Inclusive and Special Education with two Dean's Awards for Academic Excellence and Achievement from the University of Monash, Australia. Her postdoctoral training was at Keele University, UK where her research focus was children with autism. She is currently a fellow of the NIHR-funded project grant 'Enhance' on perinatal mental and a principal investigator of another NIHR grant 'NAMASTE' on children with Autism.

She is currently working as a consultant community physician, and National Programme Manager in Child Care, Development and Special Needs at the Family Health Bureau, Ministry of Health. She is keen and passionate in developing services in Sri Lanka to facilitate the optimal development of all children, including children with disabilities and vulnerabilities.

# Nurturing Care Framework for Early Childhood Development

Dr. Asiri Hewamalage,  
National Program Manager in Child Care and Development and Special Needs, Family Health Bureau, Ministry of Health

**Abstract:** Investing in early childhood development is the best way for a country to prosper, promote economic growth, expand equitable opportunities and end poverty. The Nurturing Care Framework by the World Health Organization provides a road map for action for Governments, policymakers, social organizations, parents and caregivers illustrating on how to invest in the early childhood period.

To reach their full potential, children need the five components of nurturing care. Those are good health, adequate nutrition, responsive caregiving, safety and security, and opportunities for early learning. These components of nurturing care are applicable throughout the early childhood period and even beyond. While promoting a child's development, nurturing care also guards children against the worst effects of adversity by reducing their stress levels and boosting emotional and cognitive coping mechanisms.

The nurturing care framework identifies that to provide nurturing care for a child, the caregiver's well-being is mandatory. Here the caregiver can be parents as well as teachers and other caregivers. Hence, this framework urges the Government to bring up a policy environment that addresses the caregiver needs as well.

In this guest speech, I will be focusing on the five components of nurturing care with a special emphasis on responsive care and opportunities for early learning. I will be discussing how these components should be applied in early learning settings and what are the policy and strategic directions to be followed.



### **Emeritus Professor Lakshman Dissanayake**

Professor Lakshman Dissanayake is an Emeritus Professor of Demography. He is a Fellow of the Royal Society of Arts, United Kingdom. Professor Dissanayake is the former Vice Chancellor of the University of Colombo and former Chair Professor of Demography. He is also a receiver of National Honours - *Deshabandu* from the President of Sri Lanka for his meritorious service to the nation.

Professor Dissanayake received ‘Excellence in Research’ Award (University of Colombo) and ‘Excellence in Research: Highest Grant Recipient’ Award (Committee of Vice Chancellors and Directors in Sri Lanka). He was an Independent Expert at the SAARC Secretariat, the Lead Consultant to the United Nations Population Fund on various projects, served as a member of ‘Irregular Migration Research International Reference Panel’ and a Member of their Research Advisory Group of the Department of Immigration and Border Protection of the Australian Government. He is a Member of the Migration Research Leaders Syndicate of the International Organization of Migration, Geneva, Switzerland. Professor Lakshman Dissanayake is an Honorary Professor of the Yunnan University of China, Visiting Professor of the Leeds Metropolitan University, United Kingdom and Adjunct Member of the Australian Centre for Population and Migration Research. Locally, he is a Council Member of the National Council for Elders, and National Institute for Social Development and a member of the Board of Directors of the Fulbright Commission of Sri Lanka. Professor Lakshman Dissanayake’s expertise includes population ageing, fertility and reproductive health issues, regional demography, regional development planning, health demography and post-disaster reconstruction. He has published books, book chapters and numerous research articles in reputed local and international journals.

# Review of University Admission Policy

Lakshman Dissanayake  
Former Vice Chancellor of the University of Colombo

**Abstract:** In democratic societies, everyone is considered equal and access to education should not be contingent on inherited advantages. This universal and enduring trend from a priority given to inherited merit to the issue of fairness in the admission process is rooted in the advent of post-industrial societies. Furthermore, the concept that educational opportunities and social positions should be recognized along with one's individual merit has been firmly institutionalized in modern society.

In Sri Lanka, university admission for disciplines other than Arts, have been dependent on two systems: merit-based and needs-based. The first is based purely on GCE(A/L) scores but the second is based on the place of residence at the time of the GCE(A/L) examination, which addresses the needs of the regional requirements. When literature on university admission policy is reviewed, one can observe conflicting views on both these systems. Therefore, the main objective of this paper is to review the current university admission policy and propose recommendations to ensure equitable access to higher education. It is important to note that the proposals should not be disrupting the best practices available in the present policy and thus address only controversial areas the public is very much concerned. In this context, it is intended that evidence-based policy recommendations be provided by examining trends and patterns in related data pertinent to university admission. This review has identified that the current practice of using the Population Ratio to determine the number of students based on the District Quota System as well as the 'Disadvantaged Districts' needs to be abandoned as it does not represent the true nature of the distribution of GCE(A/L) students who are sitting for the examination in a given year, instead, it exhibits the distribution of population in proportion to the total population in the country which includes all the age groups and all the school enrollments. Furthermore, population figures for districts as well as for Sri Lanka are based on estimation by the Department of Census and Statistics based on certain assumptions by looking at the past trends which would not be the true population for a particular district for a given year. In this context, the Student Ratio is superior because it takes into account the real situation data. Therefore, this paper strongly recommends with proven evidence that the best method will be the use of the Student Ratio calculated by taking the proportion of GCE(A/L) students in each district to the total number of students sitting for the GCE(A/L) examination in a given year. Furthermore, this review suggests that 5 percent be added to the merit-based system to have a total of 45 percent and remain it at that level at least for another five years before the next refinement is done. The review also recommends that it is critical to reassess the university admission policy periodically, especially the systems based on other than merit for making incremental changes to drive towards a 100 percent merit-based system in the future.

**Keywords:** University Admission Policy, Population Ratio, Student Ratio, District Quota System, Merit-based System



### **Emeritus Professor Dhammika A. Tantrigoda**

Professor Dhammika A. Tantrigoda is an Emeritus Professor of Physics at the University of Sri Jayewardenepura and currently functions as the Chancellor of the Open University of Sri Lanka. He is also the Principal Investigator of the Bengal Fan Satellite Gravity Project of the Ministry of Foreign Affairs, Sri Lanka.

Prof. Tantrigoda's research interests are geophysics and mathematical and computational physics. He received the National Science and Technology Award in 2008 for his research which revealed useful information needed for claiming the sea-bed area entitled for Sri Lanka under the United Nations Convention on the Law of the Sea.

Prof. Tantrigoda is a Fellow of the National Academy of Science of Sri Lanka and a Fellow of the Royal Astronomical Society and served as the General President of the Sri Lanka Association for the Advancement of Science (2011).

## **Review of Z-Score Standardization of GCE(A/L) Examination Marks**

Professor Dhammika A. Tantrigoda  
Former Professor of Physics of the University of Sri Jayewardenepura

**Abstract:** The Z-Score method is the standardization process used for GCE(A/L) results since 2002. This method has its own merits and demerits.

The Z-Score of a candidate for a subject is calculated by subtracting the average mark for that subject from the mark obtained by the candidate and dividing the result by the standard deviation of marks for the subject. Removing the average will ensure the removal of effect due to the level of difficulty of the question paper and the division of this difference by the standard deviation tells us the magnitude of deviation of the relevant mark from the average. If the difference is within the first standard deviation, then it is not a significant change. Any deviation above the standard deviation can be considered significant and the higher the deviation in terms of the number of standard deviations higher the significance.

The strengths and weaknesses of the Z-Score method as a criterion for selecting students to the universities together with the alternative methods available for the purpose will be discussed in the speech.



# **Abstracts of Research Communications**

# Can the Concepts of Global Citizenship Education be Inculcated in Secondary School Students through the Modules Offered Under Different Subjects? Evidence from Sri Lanka

Anthoni Durage Asoka De Silva<sup>1\*</sup>, Darshana Samaraweera<sup>2</sup>, Umani De Silva<sup>3</sup>, K.G.K. Prabhash<sup>4</sup>, Paramarajan Atchuthan<sup>5</sup>, W.A.M.C.P. Welagedara<sup>6</sup>, G.K. Verosha<sup>7</sup>, T.A.R. Jayasena<sup>8</sup>, J.C. Thapaswarage<sup>9</sup>, K.K.V.S. Kankanamge<sup>10</sup>

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**Abstract:** Global Citizenship Education (GCED) is a transformative, lifelong pursuit that involves both curricular learning and practical experience to shape a mindset to care for humanity and the planet, and to equip individuals with global competencies to undertake responsible actions aimed at forging more just, peaceful, secure, sustainable, tolerant and inclusive societies. Many concepts embedded in Sustainable Development Goal Target 4.7, especially those associated with global citizenship, are largely absent from national education policy and curricular documents in Asia. Although GCED practitioners have been actively involved in integrating GCED in various aspects such as policy, research, advocacy, pedagogy etc., its vast potential is yet to be explored. The current study is an attempt to investigate the potential of inculcating GCED concepts among secondary school students through the modules developed by integrating them under the subjects Civic Education, Mathematics, Science, English Language and Arts. Modules developed by integrating GCED concepts under each subject were trialed out in grade 6 and 8 classes of four national schools. Observation schedule was used to record the occasions in which selected themes and sub themes of GCED were addressed while delivering modules. Semi-structured interviews were conducted with the teachers and students to explore their views on integrating and inculcating GCED concepts through different subjects. Qualitative data analysis revealed that there is a vast potential of inculcating GCED concepts through different subjects. Provision of intensive teacher training for subject teachers is crucial in order to assure the success of this innovative practice. Other measures need to be taken to inculcate GCED concepts among students through different subjects are also discussed.

**Keywords:** Global Citizenship Education; integrated curriculum; secondary school students; GCED concepts

# Creating Competent English Language Users for the 21<sup>st</sup> Century: Developing English as a Second Language Curriculum Based on Validated Level Descriptors for the General Education System in Sri Lanka

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**Abstract:** ‘Human Capital Development’, needs to be treated as the best investment for a developing country like Sri Lanka with regard to social mobility, educational and employment opportunities and global industry. Investment on Human Capital development is to be done mainly through Education and, if Sri Lanka to sustain in highly competitive employment sphere in future, both at local and international levels, education should provide the required skills, knowledge and attitudes for the future citizens through a systematic, carefully developed curriculum. Further, English language education has been identified as one of the crucial and essential components to be improved, when facing global competitiveness. Hence, this study focused on exploring the possibility of developing an English Language Curriculum based on the validated Level Descriptors in order to create competent users of the English language who can easily surpass the communication challenges in 21<sup>st</sup> Century world. Communication ability of the learners in English language within the general education system has been a popular research area in Sri Lanka and the findings have revealed that the performance level of the students is considerably low and unsatisfactory. Since, the majority of Sri Lankan students gain English language ability mainly within their classroom settings, the necessity of developing a curriculum with solid objectives that directly facilitate the learners’ target performance, has been felt a need over the past few years. Accordingly, within this study, identifying the issues with the existing curriculum, selecting a suitable curriculum model, developing the curriculum, obtaining feedback from the stakeholders and evaluating the developed curriculum based on the reviewers’ feedback were considered. The findings of the study were more towards the positive trend and close alignment of all key institutes of education, proper teacher training and monitoring system and equal distribution of resources among schools are at the central attention for a successful implementation of the proposed curriculum. This study was conducted using the mixed method and six-staged research design was adapted to achieve the objectives of the study. 30 purposefully selected reviewers were considered as the sample for data collection. The findings of the study based on review reports highlighted more strengths than the issues and concerns. The highlighted issues and concerns were categorized and published as possible research areas of future researchers.

**Keywords:** curriculum development, level descriptors, curriculum objectives, target performance, 21<sup>st</sup> Century

# Assessment of Structural and Process Quality of Care and Education Provisions Provided to Preschool Children in Sri Lanka

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**Abstract:** Sri Lanka is yet to establish a quality assurance and certification (QAC) system for fostering quality and standards of centre-based ECCE provisions. As a prelude to the design and introduction of QAC system for the ECCE sector, the National Education Commission has undertaken a study to assess the structural and process quality of Early Childhood Development (ECD) centres. The descriptive research approach was adopted as the study design and a questionnaire survey was used to collect data from a sample of 358 ECD centres selected randomly from the 25 administrative districts. Results revealed that despite having Provincial level Statutes, only 97.5% of centres are registered with the Provincial Council designated authorities while the rest are either registered with other State institutions or operating without any registration. As regards governance and management, more than half of the centres (56.4%) are owned and managed by the private sector. Most ECD centres (78.8%) have adopted the so-called “preschool method” whose philosophy is unknown. A considerable number of ECD centres (35.3%) operate without minimum land space. Further, nearly one-third of centres are located in places that are considered undesirable for children’s development and learning. Although most centres are equipped with essential outdoor and indoor facilities, approximately one-fourth of the centres do not have adequate indoor space, learning areas, and other essential facilities. Further, a considerable number of centres operate without adequate quantities of furniture, teaching and training aids, and learning space. However, most of the ECD centres (>90%) are equipped with basic water, sanitation, and hygiene (WASH) facilities. As regards human resources, the study revealed that nearly half of the centres do not have a manager or principal. Further, 33.0% of ECD centres do not have teaching assistants to assist teachers. However, most of the ECD centres (84.6%) satisfy the standard requirement teacher-to-student ratio of 1:20. Further, most of the preschool teachers (84.6%) have professional training of one year or more. Although most ECD centres follow a written curriculum and a daily routine, a few centres do not prepare daily schedules and plans. From those who prepare daily plans some do not consider curriculum goals as well as some of the essential features of a daily routine for preparing daily plans. Most ECD centres except a few follow activities promoting, holistic development. In conclusion, the results of this study reveal that there exists a significant dichotomy within the ECD sector. Though most of the centres have demonstrated a satisfactory quality of the structural and process features, a sizable fraction of ECD centres are grossly deficient in most of the structural and quality aspects.

**Keywords:** Early Childhood Education, Structural and Process Quality, Child Development

# Exploring the Secondary School Mathematics Teachers' Awareness and Practices on 21<sup>st</sup> Century Learning

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**Abstract:** In this era of the 21<sup>st</sup> Century world, pedagogy has changed in terms of strategy, approach, method, and technique. The majority of teachers have limited been exposed to the 21<sup>st</sup> Century teaching and learning strategy and as a result, they are still struggling in mastering it. This descriptive survey research study was conducted to explore the Sri Lankan secondary school mathematics teachers' awareness, opinions, and practices in terms of 21<sup>st</sup> Century Learning. A total of sixty numbers of (n=60) secondary mathematics teachers at thirty-three (n=33) schools representing Type 2, 1C, and 1AB in Kandy district, Central Province, Sri Lanka were selected as respondents. The data were obtained through a questionnaire using a 5-point Likert Scale which included three aspects of teachers' awareness, opinions, and classroom practices. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 22.0. The Cronbach's alpha reliability index indicated a high value of 0.893. The findings show that moderate mean value of awareness level (mean = 3.54, SD = .989), high mean values for both classroom practices (mean = 3.89, SD = .766) and opinions (mean = 3.80, SD = 0.823). In addition, the findings showed that there was a significant positive correlation between Teachers' opinions with Classroom practices ( $r = 0.554$ ) and Teachers' opinions with awareness ( $r = 0.440$ ). Based on these findings the study concluded that secondary school mathematics teachers are moderately aware of 21<sup>st</sup> Century learning, they have positive opinions about 21<sup>st</sup> Century learning and they practice 21<sup>st</sup> Century learning concepts up to satisfactory levels in their classrooms. Further, they expect professional development practices for improving their knowledge, teaching-learning process, and assessing the students according to 21<sup>st</sup> Century learning. Through the appropriate teacher education programs, teachers can be improved their teaching-learning process in relation to 21<sup>st</sup> Century learning, which meets the actual mathematics education outcomes in the future.

**Keywords:** Awareness, Opinions, Classroom practices, Secondary school mathematics, 21<sup>st</sup> Century learning.

# Investigating the Influences of Mathematics Teachers' Pedagogical Content Knowledge on Students' Algebraic Thinking

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**Abstract:** The mathematics teachers' pedagogical content knowledge (PCK) in Algebra has become a crucial factor of investigation in the scientific studies aiming the quality of mathematics education. The purpose of this research was to identify the mathematics teachers' PCK in terms of the students' algebraic thinking in the Galle education zone. In this mixed methods research quantitative and qualitative, two phases were conducted in the Explanatory Sequential Research design. A validated and reliable questionnaire was administered in the first phase and the items consisted of the content of Algebra in Grade 6-11 mathematics curriculum. A Google form was sent to the mathematics teachers (n=292) and the marks of the collected data ranged between 25 and 64. The majority were included in the medium level (mean=43.33 and SD= 6.99). The qualitative data of the classroom practices of the sample selected from stratified sampling method (n=8) and the post-lesson semi-structured interviews reflected two major themes, the building of algebraic concepts in the students' minds and addressing the misconception. Students' algebraic thinking was not developed by the teachers through well-organized creative activities underlying the two themes. The mathematics teachers were unsuccessful in developing students' algebraic thinking at the initiating stage of Algebra, since they were limited to the scope of the textbook and they are adapting to the inappropriate teaching strategies. In order to enhance the students' higher level of achievement in mathematics education, the researchers recommend a professional development program and a continuing education program for enhancing the mathematics teachers' PCK based on abstract Algebra.

**Keywords:** Algebra, Algebraic thinking, Building of algebraic concepts, misconceptions, Pedagogical content knowledge

# STEM/STEAM Education in Sri Lankan General Education System: Current Status and Way Forward

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**Abstract:** General education systems in many countries have embraced the STEM/STEAM education approach to equip students with competencies to meet the needs of the 21<sup>st</sup> Century. Though few initiatives have been taken in Sri Lanka in this regard, it appears that the STEM/STEAM education approach has not yet been internalized fully at the school level. Therefore, this study was designed with the objectives of assessing the degree of awareness and perceptions of the key stakeholders on the STEM/STEAM educational approach, the availability of human and physical resources including the teachers, teaching material and facilities in the school system, and the availability of Continuing Professional Development (CPD) training opportunities on STEM/STEAM education approach for teachers. Mixed methods research approach was adopted and the questionnaire survey was used as the primary tool of data collection. The responses of 800 respondents indicate only 43.5% and 33.7% of respondents, were aware of STEM and STEAM education approaches, respectively. The awareness was significantly correlated with the age of the teacher (0.0092,  $P < 0.01$ ) showing high awareness in younger teachers, primarily gained through informal channels. Very few opportunities are available for teachers to acquire knowledge and pedagogical competencies in STEM/STEAM education approach, and it appears that there was not much enthusiasm at the school level to internalize this approach. The availability of physical resources is also not at a substantial level to facilitate the adoption of STEM/STEAM education approach. Teachers stressed the need for well-focused CPD training programmes coupled with the provision of required physical resources to facilitate the adoption of STEM/STEAM education approach in the classroom. In conclusion, the results of the study show, the schools appear to be deficient of clear policy direction and in critical elements such as well-informed and well-trained human resources and required physical resources and teaching and learning to embrace and internalize the STEM/STEAM education approach.

**Keywords:** STEM/STEAM education, teacher awareness, CPD training

# Entrepreneurship Education at Schools in Sri Lanka: Perspective of Entrepreneurs of Jaffna District

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**Abstract:** Entrepreneurial education has the mandate to equip students with functional knowledge and skills to build up their character, attitude and vision to contribute to national development. The purpose of the study is to identify the current status of entrepreneurship education at schools to promote entrepreneurs and the factors influencing on it. The case study research design was employed for this study. The sample was selected from entrepreneurs from Jaffna District from various fields. The interview schedule was developed and interviews were conducted with ten entrepreneurs. The voice records were transcribed and uploaded into NVivo software. Thematic analysis was employed for this study. The finding stated that most of the participants expressed that the teaching and learning approach needs to be modified to develop the skills and characteristics of students to promote entrepreneurs. Further findings revealed that the six main factors influencing the promotion of entrepreneurs such as education policy and procedures, teaching and learning approaches, attitudes, social culture, communication and business ethics. These factors should be taken into consideration for designing and implementing entrepreneurial education in Sri Lanka

**Keywords:** Entrepreneurial education, Schools in Sri Lanka



# Impact of Teaching, Cognitive and Social Presences on Learning Effectiveness: Evidence from Management Faculty Undergraduates in the University of Kelaniya, Sri Lanka

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**Abstract:** Online education significantly invades the global higher education system and has changed peoples' perspectives immensely. Although most higher education providers are now using the online platform, the literature on the antecedents of teaching social and cognitive presence is still emerging and remains mostly unexplored. Thus, this paper investigates the impact of teaching, social, and cognitive presence on learning effectiveness. The study was conducted in the quantitative approach. Data has been gathered from 300 undergraduates of the Faculty of Commerce and Management Studies of the University of Kelaniya using a self-administered questionnaire. Structural equation modeling was used to analyze the data with IBM SPSS and AMOS. The study contributed to the existing literature on teaching, social, cognitive presence, and student satisfaction's mediating role in enhancing learning effectiveness. The study implied the importance of developing a delicate mechanism that supports online teaching and social and cognitive presence to maximize learning effectiveness while improving student satisfaction. In conclusion, the study explored the impact of teaching, social, and cognitive presence on learning effectiveness which is seldomly explored in the existing literature on online education. Theoretical association between these teaching, social, and cognitive presence on learning effectiveness revealed significant practical implications and insights for future research.

**Keywords:** Cognitive Presence, Learning Effectiveness, Social Presence, Student Satisfaction, Teaching presence

# Mental Health Status and Psychological Counselling Needs of Undergraduates: A Dilemma in State Universities

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**Abstract:** Mental health is a prerequisite for high educational performance. Politicized state university sub-culture in response to the ground realities of downsizing welfare in a shrinking economy, class polarization of state and private sector university clientele appear to have constructed a severe social psychological dilemma that downgrades the teaching-learning experience of undergraduates. The objective of this study was to capture the mental health status of undergraduates at the so-called 'rag season' while analysing their behaviour seeking psychological counselling services. The survey covered 848 fresh students, data of 137 students sorted psychological counselling services, 10 interviews with academic staff and students brought a large volume of data subjected to analysis. A scale employed capturing 23 aspects of mental health revealed that though the majority is immune to politically motivated peer pressure, less than 25% of students at varying degrees suffer psychological instability. Moderate or severe unhappiness (19.7%), depressive thoughts (26%), sleeping problems (16.7%), serious inability in focusing (15.7%), and aggression (20.8%) were some of them. Psychiatric illness, relationship failure, ragging and SGBV, family problems, sexual disorders, academic issues and conflicts with fellow students are the most commonly apparent reasons for seeking psychological counselling. Depression (38%), stress and anxiety disorders (22.6%) are the most common mental health issues reported to the Psychological counselling service. About 14% experienced suicidal ideation at a certain point of distress when 45.9% associated their distress with ragging and coercive student politics. 83.9% of students represented lower middle-class and working-class families and 18.9% reported mild to moderate forms of drug abuse. Cross tabulations indicate that psychiatric illness and suicidal ideation among students show a relationship with ragging and violence ( $P=0.000$  &  $P=0.019$ ). Analysis of interview data raised thematic categories to say that ragging and peer-induced violence downgrade the teaching-learning experience significantly and for a minority of cases the damage is permanent.

**Keywords:** Mental Health, Psychological Counseling, Ragging, Undergraduates, Violence

# An Investigation Towards Digital Transformation for a Sustainable Higher Education in Sri Lanka

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**Abstract:** The worldwide development of information technology has been significantly influencing all sectors of every organization including education in the past decades. As such, the world is in a digital age with its economical and societal sectors being affected and influenced by digital transformation. Therefore, higher education in Sri Lanka has no exception but to embrace and internalize the potential of technological developments for a sustainable future. Thus, this paper presents the preliminary results of an ongoing study aimed at assessing the current status of the digital transformation of higher education in Sri Lanka regarding ICT and human resource preparedness, and the integration of digital transformation into academic and administrative activities. A mixed method was used for data collection using questionnaires with open and closed-ended questions for higher management, academics, administrators, IT staff, students, and librarians, and semi-structured interviews were conducted with selected higher management personnel. The expected response rate of the population was 10%; out of these 454 academics, 4549 students, 127 administrators, 110 librarians and 77, IT staff respondents responded for on-line questionnaire. According to the survey, the preliminary results revealed that the availability of digital devices such as desktops, laptops, and mobile phones for online education varies among different users. Interestingly, 94% of students reported using mobile phones for their learning. Further, preliminary data suggested a significant difference in the use of computers and multimedia-like classroom technologies in teaching based on the availability and use of modern ICT technologies for education. From this survey, it could be noticed that digital platforms like LMS (Moodle, Google classroom), video conferencing (Zoom, Google meet, MS team), social media (WhatsApp, Facebook, Twitter, Instagram), Cloud office applications (Google workspace) and Cloud storage (Google Drive) tools are mostly available for all the users. A detailed analysis of data revealed that there is a significant difference in the usage of such services among academics and administrative personnel. Among all, limited digital devices, stable Internet connectivity, and training on emerging ICT technologies remain the key challenges for going forward.

**Keywords:** Information Communication Technology (ICT), ICT preparedness, ICT Integration, Education, and Digitalization.

# Congruence of Human Resources Produced by Universities with Employment Market:

## Part I: Intake and Output, Employability Trends, and Employability by Discipline

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**Abstract:** Despite the low enrolment rate, graduates from State universities face difficulties in finding employment. To analyse this issue, a study has been initiated with the aim of analysing the university intake and output data, trends in graduate employment, the relationship between the employment rate and the outcome of the quality assurance review, and ascertaining employers' perceptions of university graduates. The study adopted the mixed research design approach and implemented it in three phases: Phase I: Analysis of secondary data; Phase II: Review of Quality Assurance (QA) Review reports; and Phase III: Study of employer's perceptions. Secondary data were obtained from the Department of Census and Statistics, Ministry of Education (MoE), Department of Examination, University Grants Commission (UGC), State universities and the Quality Assurance Council of the UGC (QAC/UGC). Employer perceptions on graduates were collected via a survey covering a sample of State and private-sector employers. This paper presents the outcomes of Phase I and II studies. Analysis of secondary data on university admission (1980 - 2020) revealed that State universities historically enrol a higher number of undergraduates into arts (social sciences and humanities) compared to management, and science-based study programmes. This pattern parallels closely with the number of students sitting for the GCE(A/L) examination and the number of qualifying from different study streams which have historically been skewed towards arts and commerce. As of the School Census Report (2020) of MoE, out of 2,932 schools that offer GCE(A/L) streams, only 1,000 schools (34.1%) offer all four streams (Science, Arts, Commerce, and Technology), while 1,932 (65.89%) schools offer only Arts and Commerce streams. As a result, for example in 2021, out of the total number of students who sat for GCE(A/L), 163,093 students were in arts and commerce streams while only 103,903 students were in science and technology streams. As of UGC data (2021), enrolment into arts, management and commerce study programmes accounted for 43.2% of intake, while the rest of the disciplines, mostly science-based study programmes accounted only for 56.8% of the total undergraduate enrolment. Consequently, State universities turn out more graduates in the disciplines of social sciences and humanities (SSH). Secondary data analysis also showed that graduate unemployment has continued over the years with an increasing trend from 1992 to 2020. In 2019, graduates from the crowded SSH disciplines experienced the lowest average employment rate (30%) compared to science, agriculture, management, engineering and medicine whose average employment rates were 74%, 63%, 68%, 94% and 98%, respectively. Analysis of QA review reports revealed that the majority of the SSH study programmes/clusters received "C" or "D" grades for Criteria 3 (Programme Design and Development), Criteria 4 (Course/Module Design and Development) and Criteria 5 (Teaching and Learning) except for

Criteria 7 (Student Assessment and Awards). On the other hand, most of the management, agriculture, and medicine study programmes/clusters received relatively high grades (A or B) for Criteria 3,4,5, and 7, suggesting that the study programmes in SSH have not adopted the best practices prescribed to a satisfactory level and reached the quality standards stipulated by the QAC/UGC. Preliminary results of the study suggest that both the general education sector and State universities have not been responsive to the trends in the labour market that parallel transformation taking place in the Sri Lankan economy as well as in the global context, and continue to follow historical trends thus continuing to produce human resources which are not in congruence with labour market needs.

**Keywords:** Graduate employment, Arts, Management, Science Study programme, Quality Assurance

# Orthographic Errors in English Writings of Bilingual Students

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**Abstract:** The language teachers experience various errors of the bilingual students' writing. Writing measures performances of students and incorrect orthography can alter the whole meaning of the word. Therefore, this research unfolds orthographic errors in the English writings of bilingual students. Both quantitative and qualitative methods were used to collect data. The necessary data were accumulated through a questionnaire, interview and written tasks. The students were given an in-class writing task and dictation words. The questionnaire was given to students and the bilingual teachers were interviewed to collect accurate data. Thirty bilingual students in Grade 11 were selected as the research sample and five bilingual teachers were selected as the purposive convenience sample to get the accurate data. The objectives of this study are identifying orthographic errors in English writing of bilingual students, to find out why the most bilingual students make mistakes of orthography and the most constant type of orthographic errors of bilingual students and to suggest remedial measures to prevent the problem. In addition, the results revealed that carelessness and use of technology were the most popular reasons behind the problem. According to the analysis, students should be motivated to learn correct orthography of English, use mnemonics, different types of fun games, break down words into syllables and develop extensive reading. Furthermore, this research draws the attention of the responsible authorities to take necessary steps to overcome this situation.

**Keywords:** Bilingual learner, Motivate, Orthographic errors, Remedial measures

# Effect of Module-based Self Learning Approach on Achieving 21<sup>st</sup> Century Skills by Secondary Level Students in Sri Lanka

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**Abstract:** Students currently need to be enriched with twenty-first-century skills in order to confirm their competitiveness in this era of globalization, especially in the business and technology sector. Therefore, this research study discovers the effect of a module-based self-learning approach on the achievement of 21<sup>st</sup> Century skills (4Cs) such as communication, collaboration, creativity, critical thinking, literacy skills such as Information, Media, and Technology Skills, and life skills such as Flexibility and Adaptability, Social and Cross-Cultural Skills, Productivity and Accountability, and Leadership and Responsibility among secondary-level students. The module-based self-learning approach was applied in the learning activities of this program as its fundamental pedagogy. The study sample comprises 80 secondary level students of age 11-12 from grade 6, 5 educational officers, 5 principals, and 10 teachers who participated in the 'pre-piloting program 2022. The purpose of the study was to find whether the module-based self-learning approach could have any effect on the achievement of 21<sup>st</sup> Century skills or not. Data were collected using two standard instruments and analyzed using SPSS. Regression analysis was used as a statistical tool of analysis. The results show that there is a statistically significant relationship between the two variables and therefore, a module-based self-learning approach should be a very important consideration in the achievement of 21<sup>st</sup> Century skills. There is a tight fit or alignment between Module Based Learning and achievement of 21<sup>st</sup> Century skills.

**Keywords:** 21<sup>st</sup> Century skills, learning-centered education, Module-based learning, self-learning, self-assessment.

# Distance Education Practices in Sabaragamuwa Province: A Case Study in Practitioner's Perspective

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**Abstract:** The study examines the distance education practices of Sabaragamuwa Province. A major limitation of many distance education systems is that they fail to create a learner-centred environment which enables sufficient learner-content interaction. Sabaragamuwa Provincial Department of Education has made their intervention through *E-Nenapiyasa* learning management system to address this key limitation by facilitating learner-content interaction which makes the learner actively engage with the content and construct meaning out of it without passively accepting the knowledge presented. The data collected by conducting interviews, questionnaires and content analyses. There are distance learning innovative practices such as “*Sathi Pasala*” for self-learning worksheets, “*Sellam Midula*” for game-based learning, Interactive learning content for self-learning, online exam culture, and a counselling program, free online courses for human resource development and co-curricular activities. Results revealed that the interactive distance learning culture built through *E-Nenapiyasa* provided all stakeholders in the field of education with an enriched teaching and learning experience by ensuring interactive learning and increasing student motivation and performance and enhancing teacher satisfaction. The majority of the participants for free online courses rated the overall rating as excellent and the delivery of the course also got an excellent rating. There are issues to be addressed at the policy level such as unavailability of devices, networks and policy barriers. The central government support, encouragement as well as promotions are needed to enhance the capacity of the Sabaragamuwa distance education to achieve a national goal of promoting distance education in general education. This study will encourage the designers of distance learning platforms to replace traditional teacher-centred learning management systems with learner-conducive distance learning systems that enable active participation and reflection by learners as well as educators.

**Keywords:** Distance Education, ‘E-nenapiyasa’, Interactive Learning Contents, Free Online Courses, LMS



# Perceived Organizational Support as a Mediating Role Between Emotional Work and Employee Well-being

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**Abstract:** Every human in the world expects to live a life that makes them happy about their path. Thus, people constantly inquire about their well-being while they are working. Teachers carry out and do their jobs in the world extremely successfully. Because of the instruction provided by teachers, innovative and creative people contribute to society. In the Sri Lankan context, teachers are dedicated to creating the country's best citizens with the necessary knowledge, skills, and attitudes. Therefore, this study endeavours to measure the employee well-being of teachers in Sri Lanka. This study anticipated assessing the impact of emotional work on employee wellbeing with the mediating effect of perceived organizational support. Because data were gathered all at once, this study used a hypothetico-deductive approach and was positivist and cross-sectional in nature. The researcher selected the Sambaragamuwa province to collect data from the teachers using the technique of simple random sampling. Six hundred teachers (600) were in the sample, and four hundred respondents (400) responded to the questionnaire online and physically. Statistical Package for the Social Sciences and the partial least squares method was used to analyze the collected data. Emotional work is positively correlated with the employee well-being of the teachers while mediating the relationship between emotional work and employee well-being by perceived organizational support. This study revealed these findings by filling the literature gap regarding those vital concepts.

**Keywords:** Emotional Labour Theory, Emotional Work, Employee Well-being, Perceived Organizational Support.

# Impacts of Teacher - Student Interaction on Science Learning: A Case Study in Badulla Educational Zone, Sri Lanka

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**Abstract:** Teachers and students are the two main stakeholders in building the teacher-student relationship. The teacher transmits knowledge through the use of various teaching methods, techniques, and aids and the students develop their knowledge, skills, and attitudes by absorbing that knowledge. Teachers, therefore, play an important role in the lives of students. Similarly, knowledge of science spread across the world is more important to students for a variety of activities. Hence, this study was conducted to explore the impacts of teacher-student interaction on Science learning in Badulla Educational Zone, Sri Lanka. A total of 300 students and 25 teachers from Ordinary Level classes from 21 schools in the Badulla Education Zone were used as respondents. Mixed methods were used for this research. From that, stratified sampling techniques and simple random sampling techniques were used in the quantitative method. The purposive sampling technique was used in the qualitative method. Data were collected from two separate pre-tested questionnaires, interviews, and observations. Data were analyzed using statistical packages and thematic analysis. The findings revealed that the teacher performance ( $R=0.744$ ) and the teaching-learning process ( $R=0.796$ ) were closely and positively linked to students' science scores. However, students' temperament ( $R=0.267$ ) and classroom environment ( $R=0.138$ ) were positively but poorly correlated with Science scores. Finally, it can be concluded that student temperament and teacher performance greatly affect students' Science scores compared to other factors. It can be recommended that improving the performance of teachers positively and effectively and creating suitable conditions for students to learn can increase the Science scores of the students. The findings of this study can be used to guide children's education toward an effective and successful path.

**Keywords:** teacher performances, students' temperament, teacher-student interaction

# Improving Motivation for the Professional Development of Teachers During COVID-19 Pandemic in Sri Lanka

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**Abstract:** During the COVID-19 pandemic, the teacher had more time for professional development and the opportunity to peruse many online learning opportunities. But their time seemed to be unproductive due to a lack of proper motivation. Professional development includes all types of learning opportunities such as academic degrees, conferences, non-formal learning opportunities, teaching sessions and communities of practice, guidance, technical assistance, lesson study, and supervision. This study was on teachers' participation in the activities relevant to their professional development and to improve the motivation of teachers on their professional development during the COVID-19 pandemic. 62 teachers were involved in the intervention and there were 7 sessions on effective discussions, innovative activities, and videos. The method used was action research. The teachers had been involved with 7 assignments in the study and the assignments were different from one to another. When they were engaging in their assignments, they had to reflect on their own experiences with students and the learning environment which they designed for their students. Especially in this COVID-19 pandemic situation, students have to join online teaching-learning processes and teachers have to adapt to online technology as well. Most of the teachers were young and they expressed their views on the importance of professional development in acquiring modern online practices as teachers. Formative and summative assessments were used on them and they were very happy with their high achievement for an authentic learning experience, persuading a change in teacher education on a school-based professional teacher development program in Sri Lanka.

**Keywords:** Motivation, Professional Development, COVID-19 pandemic situation

# Status of International Schools in Sri Lanka: Preliminary Findings

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**Abstract:** This study is conducted to assess the current status of the IS sector with respect to eight core areas. Adopting the mixed method research approach, the study was planned to proceed in three phases; Phase I- Secondary data collection; Phase II: Primary data collection through a questionnaire survey, and Phase III- Verification of primary data collected through field visits. This preliminary communication is based on the results of the first two phases. The results revealed that as of 2019/2020, there were 395 ISs, and out of that almost 50% of the ISs are in the Western Province and another 17.5% were in the Central Province while only a few such schools (<3%) were found in North-Central, Eastern, Northern and Uva Provinces. Further, it was revealed that only 6% of schools were with more than 1000 students, while one-third of schools were with less than 100 students. However, by the middle of 2022, out of these schools, a considerable number of schools especially with less than 100 students appeared to have been closed or temporarily suspended their operations during the Covid- 19 pandemic. As regards the functional aspects of international schools, the majority of schools (72%) were operating with the registration from the Registrar of Companies while others had been registered with other institutions such as Divisional Secretariats, BOI and Provincial Councils, etc., while, some schools were operating with a registration obtained from some agencies which were not considered as having any legal authority to do so. Further, all international schools used English as the medium of instruction while a small percentage offer education in both English and Sinhala or English and Tamil. In terms of the curriculum offered, there exist three categories of ISs: i) schools offering local curriculum only; ii) schools following an international curriculum and iii) schools offering both international and local curricula. However, the majority were offering the local curriculum in English medium. As regards to teaching-learning approach, many schools claimed that they adopt diverse methods of teaching-learning ranging from teacher-centered to student-centered approaches. Most of the schools appear to adopt formative as well as summative assessment methods. Further, most schools claimed to provide a multitude of co-curricular and extra-curricular activities to develop personality and civic consciousness in students. As regards teachers, most of them were with the Diploma in Education while a few percentages of teachers appear to be with Bachelor's and Postgraduate level academic qualifications. It appeared that there was a significant difference in the availability of infrastructure facilities and learning resources among different categories of international schools. In terms of quality assurance and certification, no formal quality assurance system is adopted by the majority of international schools. In conclusion, there exists a diversity among international schools with respect to the place of registration, the curriculum offered and medium of instruction, human and physical resources and quality assurance.

**Keywords:** International Schools, Quality Assurance, Education

# TVET Diploma Programmes (NVQ 5 / 6): Demand and Supply, Physical and Human Resources, and Success Rates

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**Abstract:** Middle-level technical training at diploma (NVQ 5/6) levels is primarily provided by nine Colleges of Technology of the Department of Technical Education and six University Colleges of the University of Vocational Technology. These programmes admit students from both the NVQ and GCE(A/L) streams. As the students from both streams have shown gaps in pre-requisite knowledge and skills, particularly in mathematics, ICT and English language, a gap-filling/transition programme is offered before they proceed into the core programme. As the functioning of the NVQ 5/6 programmes has not yet been thoroughly investigated hitherto, this study was carried out to examine whether these programmes are achieving the desired outcomes. A questionnaire survey complemented with interviews was used as the primary tool of data collection. Researchers physically visited colleges to administer questionnaires to students and conduct interviews with teachers and higher management. Though the demand for NVQ 5/6 has increased by 5-fold, the intake of students increased only marginally with an enrollment rate of less than 20%. Though the overall perception of students both on the transition as well as the core programmes is above average, both the NVQ 5 and 6 programmes have experienced relatively high dropout rates and low success rates to graduate at the first attempt. From the viewpoint of the students, financial constraints and learning difficulties are the key reasons for low completion rates. Even though students say they are happy with the transition programme, the low completion rates observed suggest that the current transition programmes may not be meeting the expected outcomes, particularly to rectify the language deficiencies. As regards the operational aspects, the academic staff and the higher management cited issues related to inadequacies of human and physical resources, the competency-based assessment system implemented by Technical and Vocational Education Commission (TVEC), and communication and coordination among the institutions as the major limiting factors and challenges faced by the training institutions. In conclusion, the results of the study suggest that the focus and content and duration of the transition programme, student assessment procedures, staff recruitment, teaching-training facilities, and students' learning difficulties must be re-evaluated and redressed to overcome the associated implementation issues. Further, considering high drop rates and low success rates at the first attempt to graduate, the possibility of providing a suitable financial support system for students must be examined.

**Keywords:** Technical and Vocational Education and Training (TVET), National Vocational Qualifications (NVQs), Student Dropouts, Transition programme, Diplomas

# Teacher Professionalism: Assessment of Current Status of Continuing Professional Development Programmes

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**Abstract:** Though many countries have institutionalized mechanisms for promoting teacher professionalism, Sri Lanka is yet to take decisive efforts in this regard. As a prelude to addressing this issue, a study was conducted adopting a descriptive research approach with a questionnaire survey as the primary tool of data collection. A sample of 650 teachers randomly selected from all school types across the country to assess the availability of continuing professional development (CPD) programmes for teachers, teachers' perception on the value, focus, content and delivery of CPD programmes, availability of institutional support to facilitate teachers to seek CPD opportunities and required physical resources and institutional support for the adoption of new teaching-learning and assessment strategies, and to seek suggestions to foster the teacher professionalism. Results of the study show that as the majority of respondents showed their interest to participate in CPD programmes, only less than half of them appear to have got the opportunity to go through such programmes. Results also found that the availability of CPD programmes was not uniform across provinces, medium of instruction and school categories. The most common themes covered by CPD training were aimed at improving competencies in the teaching of discipline-specific themes and contents, and assessments while the coverage given for ICT-related topics was relatively limited. While the respondents were moderately satisfied with the available opportunities and benefits accrued through such programmes, they also highlighted several weaknesses and gaps of the current programmes citing the need for more training on themes such as ICT-based methods and tools for teaching-learning and assessments, examination paper setting and moderation, and dealing with students with special needs. Further, they stated that the limiting factors such as inadequate financial incentives and transport facilities and establishment matters relating to getting leave and covering arrangements have hampered their participation. In conclusion, the findings of the study suggest that the CPD programmes offered to teachers need to be further strengthened in terms of availability, coverage, scope, and quality. In addition, if the full benefits of CPD programmes are to be accrued, a parallel improvement in school infrastructure and teaching-learning facilities coupled with easing out establishment matters must be ensured. Further, the finding of this study highlights the need of institutionalizing a mechanism backed by clear policies and strategies coupled with regulations to promote teacher professionalism in Sri Lanka.

**Keywords:** Teacher professional development, general education, SLTC, learning aids, teacher professionalism

# A Study on Environmentally Conscious Behaviour and Attitudes of In-service Science Teachers in Sri Lanka

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**Abstract:** The educational system needs to undergo significant adjustments in order to prepare the citizenry for the new demands of the 21st century and achieve sustainable development while addressing current environmental challenges. Promoting environmentally responsible behaviour has proven to be a successful strategy for achieving sustainable development by integrating environmental conservation. Teachers have a significant impact on students' environmental literacy, which in turn helps to create a more environmentally conscious society. Hence, teachers must exhibit pro-environmental behaviour and attitudes in order to raise students' environmental literacy. This quantitative study aimed to evaluate attitudes towards the environment and environmentally responsible behaviours carried out by secondary-level science teachers in Sri Lanka. The specific research objectives were to, i) identify the attitudes towards the environment exhibited by in-service teachers, ii) investigate behavioural aspects of in-service teachers about the environment and iii) determine the relationships between selected social background variables and (a) attitudes toward the environment and (b) behaviour toward protecting the environment. A sample of 168 secondary-level in-service science teachers participated in the survey. Their attitudes and behaviours about the environment and its protection were examined via a Likert-scaled type questionnaire and quantitatively analysed using SPSS 23. Descriptive statistics and Pearson correlation tests were carried out to determine the relationships between selected social background variables and attitudes and behaviours toward the environment. The majority of in-service secondary-level science teachers have favourable attitudes towards the environment and the mitigation of environmental issues. As regards the attitudes towards the environment, there was a significant relationship with age and education. Even though a variety of environmentally responsible behaviours are practised by teachers, their commitment to engaging with community-level programs and societies in this context was lacking. The results of the research gave a comprehensive representation of the environmental attitudes and behaviours of the in-service science teachers, which can be used to design extensive programs for teacher training for the next cycle of curriculum reforms.

**Keywords:** education for sustainable development, environmental issues, environmental literacy, science education



# Experience Gathered from the Pre-pilot Study on Implementing Module-based Science Curriculum Reforms Islandwide

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**Abstract:** This study investigated students' and teachers' experiences with the module-based system in the local curricular reforms to be implemented from 2023 onwards. The pilot study was implemented to evaluate the module system in local government schools to find out the suitability of the design and feasibility of the activity-based curriculum. Data collection focused on subject teachers and students who have participated in the pre-pilot program. Data were collected through teacher and student questionnaires, observation schedules, and unstructured interviews. Results revealed that the proposed integrated teaching and learning strategy in the module system can develop the curricular demands necessary to address the learning requirements of students in the 21<sup>st</sup> Century. Implications of the module system's importance of engaging in authentic learning may help to develop scientific literacy. From a teacher's point of view, the integrated process in the module system will provide solutions for barriers in the current curriculum, and the proposed plan sustained focus on pedagogy, curriculum, and skill acquisition to develop teaching skills in the 21<sup>st</sup> Century.

**Keywords:** Curricular reforms, Science curriculum, Pilot study, Teacher and Student perceptions.



# Impact Made by Mission Schools for the Development of Education in Sri Lanka: Case Study on the Schools by the Wesleyan Mission

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**Abstract:** This paper is an outcome of a study completed on Schools that were previously founded by the Wesleyan Mission in Sri Lanka. The Wesleyan or the Methodist Mission was the first Protestant Christian Mission to initiate schools in Sri Lanka. Today several of the oldest and prestigious schools across the country fall into this category. The work of the Christian missionaries in Sri Lanka has been a divisive topic in academic and educational circles. Mission schools or at least the remnant schools of the missionary past were a topic of interest till the government scheme of reorganization in the early 1960's. The spotlight on these schools and the mission in general has become dwindled. This study aims to evaluate the missionary past, with the present of these schools and to retrace the visions of the initial missionary policy and educators. The main objective of the study was to find out the contribution of the Wesleyan Mission towards Education in Sri Lanka. In achieving this objective several other questions on the Nature of Wesleyan Educational Philosophy, Current Status and Legacy in these Schools and Opinions of Stakeholders on the Educational Founding were also investigated. The study was conducted as a Multiple-Case Study selecting schools under various categories across the country. Documentary Studies, Observations, Interviews, Focus Group Discussions and Surveys were conducted for each school. Then a cross case analysis was conducted towards findings. Prominent among these were Inclusive and Multi-Cultural Education, English Education with an Enriched curriculum leading to progressiveness in education, Character development with Co- Curricular Development and the sense of Community with the house/hostel system with a strong past student presence. It was also indicative that the work of such Missionaries was not merely relevant as a historical fact but their vision continues to challenge the educational thinking in the present day.

**Keywords:** Christianity, Educational Development, History, Mission Wesleyan,

# Challenges of Online Learning for Chinese as a Foreign Language Learning in General Education System in Sri Lanka

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**Abstract:** In order to promote Chinese language learning in the general education system, Sri Lankan educationists have designed a Chinese language curriculum focusing on the success gained by local students in global contexts. At present, the COVID-19 induced changes in the education system has paved the path for a distinctive rise in online learning where teaching is undertaken remotely and digitally. Similarly, the Chinese language learners in Sri Lanka too are engaged in online learning which enables all learners to study from home without having to attend face-to-face teaching-learning at school. Online learning is a form of distance education that involves the use of technology as the medium of the learning process where teaching is entirely delivered through the internet. This study focuses on identifying challenges encountered by learners of Chinese language as they engage in online learning during the COVID-19 crisis. It further focuses on utilizing the best methods and modes to engage and motivate the learners of Chinese language as they learn online while exploring causes for the challenges faced by teachers and students engaged in this task. In this study, online survey and interviews were carried out to investigate the challenges from the perspectives of 62 self-selected learners who are learning Chinese in three different provinces and 30 Chinese language teachers. A qualitative analysis was also made where quotations from teachers were interpreted in order to illustrate in what way these factors are important. The findings demonstrated that students prefer online activities than traditional methods of learning Chinese. However, the study suggests that blended learning has a positive effect on learning Chinese than using traditional face-to-face teaching-learning methods. This study intends to facilitate students and teachers in Teaching Chinese as a Foreign Language (TCFL) to meet the 21<sup>st</sup> Century teaching and learning challenges using technology and online learning skills in education.

**Keywords:** Chinese language; general education online learning; Sri Lanka; teaching and learning

# Assessing the Secondary School Students' Ability to Understand Representations Involved in Force and Motion Concepts

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**Abstract:** Understanding the representations such as, diagrams, physical practical setups, verbal explanations/written notes, symbols (including equations), video clips, computer animations and simulations plays a major role in learning science. Use of proper representations in teaching science helps students to visualize abstract science concepts and to internally build necessary scientific models. The science curriculum materials being used in Sri Lankan school system pay no deliberate attention on how the above mentioned representations can be used to promote visualization and model building in science. Therefore, more emphasis has been made on proper utilization of appropriate representation modes as an aid to visualization in developing a new physics related course module for Grade 10 students, Force and Motion (under the proposed curriculum reform initially planned to be implemented in the year 2023) which covers the four lesson topics: Resultant force, Newton's laws of motion, Friction, and Equilibrium of force. The content areas covering under the four lessons are the same in the existing curriculum and the proposed curriculum. This study focuses on utilizing a lesson specific assessment tool to identify difficulties encountered by students in understanding the representations involved in the four lessons. Questions in the assessment tool are formulated based on visualization related areas relevant to the four lesson topics. The assessment tool consists of 22 questions out of which 15 questions were adopted/ adapted from validated sources and 7 questions were taken from the proposed physics related new course module. Content and construct validity of the tool were tested. The tool was administered to 87 selected Grade 10 students who had completed those lessons under the existing curriculum. The average marks obtained by the students for the tool is 58.43% ( $\pm 25.56\%$ ). It gave a Cronbach's alpha value of 0.86, evidencing that the tool has a high reliability. Analysis of individual questions in the tool revealed that the students have serious problems in understanding the basic representations involved in Force and Motion concepts.

**Keywords:** assessment tool, Force and Motion concepts, representation modes, visualization

# Capacity Building and Professional Development of Academic Staff Members of National Colleges of Education in Sri Lanka

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**Abstract:** The main aim of this study is to investigate the way and manner of capacity building and professional development of academic staff members of the National Colleges of Education in Sri Lanka. The specific objectives are to: identify the strategies used in identification of the training needs of the academic staff members, recognize the opportunities available for capacity building & professional development of the academic staff members, recognize the real perception of academic staff members of the National Colleges of Education in Sri Lanka on their capacity building & professional development programmes and to identify the quality standards of the capacity development and professional development programmes of academic staff members of National Colleges of Education in Sri Lanka. A mixed method, specifically the convergent parallel mixed method was employed as the main research methodology. A survey and a case study were used to study the research problem. Questionnaires, document surveys, and interviews were implemented to gather information. The participants of this study were the Presidents, Vice Presidents, Academic staff members of NCoEs and officers from the National Institute of Education and the Ministry of Education. In order to analyze data, thematic analysis and percentages were used. It was revealed that the newly recruited academic staff members of NCoEs are provided appropriate in-service training on their professional development. However, according to the responses of most of the participants, there are no such strategies used to identify the training needs of academic staff members of NCoEs at present. It was also revealed that the foreign training opportunities provided to the academic staff members of NCoEs are not sufficient and only a few training opportunities are available for them. Further, there is no transparent mechanism to select officers for foreign training programmes.

**Keywords:** Academic staff members of NCoEs, Capacity building, Professional Development, Training needs

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